

REMARKS

Applicants respectfully request reconsideration and allowance.

The amended specification responds to the Examiner's objection to the drawings by inserting reference "(4)". Please also see page 27, line 4, regarding Figure 9.

Amended claim 1 finds basis in the specification at page 5, lines 4-5, and page 6, line 4.

The present invention satisfies a need in the art, and does so in an unobvious way, as discussed below, whereby the rejection under 35 U.S.C. § 103 should be reconsidered and withdrawn.

There has heretofore been a strong demand for reducing the weight of automotive interior parts and the application of foamed moldings are known as a measure for such weight reduction. For example, JP-A-11-179752 discloses automotive interior parts comprising a foamed polyolefin-based resin molding constituted of a skin layer and a foamed layer.

However, there is a problem, with a speaker grille portion constituted of a mesh or lattice form, that if even the thin frame portion forming the speaker grille is formed of a foamed material having an expansion ratio comparable to or greater than that of the foamed layer in the base portion, the speaker grille portion is easily broken.

The present inventors discovered a speaker grille-integrated with foamed thermoplastic resin molding for automotive interior that has excellent strength even in its speaker grille portion without impairing the original object of the invention, weight reduction.

Accordingly, the present invention provides a speaker grille-integrated foamed thermoplastic resin molding for automotive interior comprising a base portion and a

speaker grille wherein at least the base portion has a foamed layer of a density ρ of not greater than 0.7 g/cm^3 and an average expansion ratio of the speaker grille is 1 to 1.3 times. The inventors have also provided a method for producing the same.

As shown in Table 1.5.1 entitled "Specific Gravities of Raw Materials Plastics" contained in "A Series of Monographs on the Science and Engineering of High Polymer, Vol. XIII, Properties and Uses of High Polymers (I), page 150, edited by Mitsuo Fjii (1967), its copy and a partial translation attached, thermoplastic resins generally have specific gravities of at least about 0.9. In the products according to claim 1, therefore, the foamed layer having a density of not greater than 0.7 g/cm^3 formed in the base portion substantially has an expansion ratio of about 1.5 ($=0.9/0.6$) times or more.

As a result, in the base portion and the speaker grille formed together in one piece from the same material in a product having the features recited in claim 1, the foamed layer in the base portion has an expansion ratio substantially different from (more specifically, greater than) the average expansion ratio of the speaker grille. In the present invention, a lightweight can be achieved by forming a foamed layer of a low density 0.7 g/cm^3 at most) that is, of a high expansion ratio) and, at the same time, an excellent strength of a speaker grille can be secured by making the speaker grille have a lower expansion ratio (1-1.3 times).

Now, the references would not have been combined, and even they were combined, they would not have taught the claimed inventions to a person of ordinary skill in the art.

In Steward et al., with present to Fig. 2, there is a description "As illustrated, the headliner comprises a composition laminar sheet 8 comprising thermoplastic films 10, 12 terraconiously bonded in supported relationship to the face surfaces of an intervening

coextensive thermoplastic foam core from one face to the opposite face thereof." (See column 3, lines 29-33.) With respect to the "composite laminar sheet 8", there is a description "The composite sheet 8 incorporates a plurality of perforations 16 extending through the films and foam core from one face to the opposite face thereof." (See column 3, lines 33-36.) Further, as pointed out by the Examiner, there is a description "A composite decorative layer comprising a resilient foam 18 is bonded such as by an adhesive layer 20 to the exterior face of the thermoplastic film 12."

Steward et al., however, fails to disclose or suggest that in a foam molding formed in one piece, a portion in which perforations have been formed, which portion might correspond to a speaker grilles in the present invention, has an expansion ratio that may be different from that of other portions, which might correspond to the base portion in the present invention.

Besides, even the Office Action concedes "Steward et al. fails to disclose an expansion ratio between 1 and 1.3 times and the resin containing 70% by weight of a polypropylene based resin." Office Action, page 3.

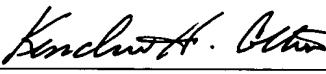
Furthermore, the secondary Karukaya reference does not disclose nor would it have suggested a synthetic resin foam in which a certain portion may have an expansion ratio different from that of other portions. Consequently, a mere broad reference to an expansion ratio falls short of even obvious to try, which is itself inadequate basis for an obviousness rejection.

In short, neither of the cited references discloses or suggests that in a foam molding, certain portion has an expansion ratio substantially different from other portions. In particular, neither of the cited references discloses or suggests that in a speaker grille-

integrated foamed thermoplastic resin molding, a speaker grille substantially has a lower expansion ratio than the foamed layer in the base portion.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY

By: 
Kendrew H. Colton
Registration No. 30,368

1801 K Street, N.W.
Suite 401L
Washington, D.C. 20006-1201
Telephone No. (202) 419-7000
Facsimile No. (202) 419-7007

Enclosure:

A copy of Table 1.5.1 entitled "Specific Gravities of Raw Materials Plastics" contained in "A Series of Monographs on the Science and Engineering of High Polymer, Vol. XIII, Properties and Uses of High Polymers (I), page 150, edited by Mitsuo Fjii (1967),